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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,223	02/16/2001	John G. Apostolopoulos	10007798-1	2552

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HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
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Fort Collins, CO 80527-2400

EXAMINER
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NGUYEN, VAN KIM T

ART UNIT	PAPER NUMBER
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2151

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/784,223

**Applicant(s)**

APOSTOLOPOULOS, JOHN G.

**Examiner**

Van Kim T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claims 1-7, 12-13 and 15-17 are objected to because of the following informalities:

Claims 1 and 3 recite the limitations “the received frame” and “the frame”. It is not clear whether they are the same.

Claims 2, 4-7 recite the limitation “first sub-sequence” and “second sub-sequence”. It is not clear whether they are the same with “first sub-sequence of frames” and “second sub-sequence of frames” as disclosed elsewhere in other claims.

Claim 12 recites the limitation "the path quality parameter" and “the receiver” in lines 1 and 2, respectively. There is insufficient antecedent basis for this limitation in the claim.

Similarly, claim 13 recites the limitation "the video encoding parameter" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Similarly, claim 15 recites the limitation "the communication parameter" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Similarly, claim 16 recites the limitation "the path quality parameter" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Similarly, claim 17 recites the limitation "the number of paths" and “the number of states” in lines 1 and 2, respectively. There is insufficient antecedent basis for these limitations in the claim.

Appropriate correction is required.

*Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 8, and 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Apostolopoulos ("Error-resilient video compression", Multimedia Systems and Application II, Proceeding of SPIE Vol. 3845, pages 180-191, September 1999).

Regarding claims 1, 8, and 18, as shown in Figure 1, Apostolopoulos discloses a method of communicating video from a sender to a receiver over a network comprising the steps of receiving a frame; determining if the received frame is from a first sub-sequence of frames; when the frame is from a first sub-sequence of frames, encoding the frame, packetizing the frame, and sending the packet via a first path; and otherwise, when the frame is not from a first sub-sequence of frames, encoding the frame, packetizing the frame, and sending the packet via a second path (Sect. 4: Novel Approach: Multiple State Streams, esp. Sect. 4.1 Encoder Portion of System, pages 186-187, e.g., input video is partitioned into two subsequences of frames, even and odd, encoded (packetized) them independently, and transmitted them on diverse/multiple paths).

Regarding claim 2, Apostolopoulos also discloses the first sub-sequence and second sub-sequence are selected based on time or space (Sect. 4.1 Encoder Portion of System, page 187, lines 4-8).

Regarding claims 3-4, Apostolopoulos also discloses determining if the frame is an odd frame or an even frame (Sect. 4.1 Encoder Portion of System, pages 186: lines 28-29). Though Apostolopoulos does not explicitly disclose including a label for identifying whether the packet is an odd or even frame, using a packetized elementary streams (PES) header to identify the type of stream is a feature well known in the art.

Regarding claims 14-16, Apostolopoulos also discloses receiving at least one path quality parameter (errors); and in response to the path quality parameter dynamically modifying at least one communication parameter including the number of paths and path configuration (e.g., multiple bitstreams,), bandwidth (e.g., bit rates), packet loss rate (e.g., intelligent discarding of data), delay, and quality of service (e.g. QoS), (Sect. 3.2: Approaches to Overcome these Problems, pages 182-185, esp. page 184: lines 27-31, 44-46, ).

Regarding claim 17, Apostolopoulos also discloses number of paths is dynamically modified to be one path and the number of states is dynamically modified to be one state (e.g., error can be limited to a single frame, page 183: lines 29-30).

### ***Claim Rejections - 35 USC § 102***

4. Claims 5-7, 9-13, and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Apostolopoulos, ("Reliable video communication over lossy packet networks

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using multiple state encoding and path diversity”, Visual Communications and Image Processing 2001, San Jose, CA, Proceeding of the SPIE Vol. 4310, pages 392-409).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Regarding claims 5-7, 9-10, and 19-20, Apostolopoulos also discloses determining if a packet is from a first sub-sequence; when the packet is from a first sub-sequence, decoding the packet; determining if there is an error in the packet; when there is an error, determining if a reduce frame rate is acceptable; when a reduce frame rate is acceptable, displaying the video at a reduced frame rate by employing frames from the second sub-sequence; when a reduced frame rate is not acceptable, performing state recovery on first frame by employing one of a previous frame and a future frame from one of the first sub-sequence and the second sub-sequence (Section 3.2: Decoder Portion of System; Sect. 3.3: State Recovery By Using Multiple States, esp. page 396: lines 3-9; and Sect. 7: Experimental Results, page 406).

Regarding claims 11-12, Apostolopoulos also discloses receiving at least one path quality parameter through a feedback link with the receiver (page 393: lines 10-12; and page 403: lines 14-16) ; and in response to the path quality parameter dynamically modifying at least one video encoding parameter (Sect. 6: Proposed Multiple State Encoding and Path Diversity System, page 404: lines 40-45).

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Regarding claim 13, Apostolopoulos also discloses the video encoding parameter includes quantization, frame rate, and spatial resolution of the encoding (Sect. Experimental Results, page 405: lines 8-24).

### *Conclusion*


5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Van Kim T. Nguyen whose telephone number is 571-272-3073. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung, can be reached on 571-272-3939. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Van Kim T. Nguyen  
Examiner  
Art Unit 2151

vkn

  
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